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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/393,768	09/10/1999	EROL BASTURK	239603PL-011	3272

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CENTRAL COAST PATENT AGENCY
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EXAMINER

FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 09/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/393,768

Applicant(s)

BASTURK ET AL.

Examiner

Derrick W. Ferris

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. **Claims 1-34** as originally filed are still in consideration for this application.
2. Examiner does **not withdraw** the obviousness rejection to *Hsu* in view of *Viswanathan* for Office action filed 4/17/03 in reference to line item 3-4. Applicant notes three items of issue: (1) replace the tag of the packet with an updated tag, (2) a normalized tag/function, and (3) randomized packet routing. At first issue, although *Hsu* supports MPLS [e.g., column 5, line 8], *Hsu* is generally silent to replacing and updating an MPLS tag (i.e., the reference focuses on the routing aspect leaving the particulars of how labels are swapped to techniques well known in the art). *Viswanathan* cures the deficiency by disclosing replacing the tag of the packet with an updated tag for MPLS as is well known in the art (page 167, right-hand column). In particular, “At subsequent nodes, the label is used as an index into a table which specifies the new outgoing label and next hop. The old label is replaced with the new, and the packet is forwarded to the next hop”. For the next two issues, applicant claims an invention where the normalizing function f_N and randomizing function f_R allows one to more fully utilize the resources of the system (applicant’s specification on page 9, lines 17-18). At second issue is a normalized tag/function as recited at least in claims 6-8 and 23-24. Applicant in general recites that a normalized tag is created using a normalized function (i.e., $T_N = f_N(T)$). Examiner notes a reasonable but broad interpretation of a normalized tag and function. Examiner notes that an MPLS tag/label is a normalized tag as is known in the art. In particular, *Viswanathan* shows a shim header of 20 bits (figure 1 on page 167), which is smaller than a typical 32-bit address used to route IP packets as is known in the art. At third issue, examiner notes a reasonable but broad interpretation of

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“randomizing packet routings” as recited in at least claims 10, 13, 26, and 29. Applicant discloses, but does not necessarily claim, that randomizing packet routings increases the likelihood that all routing resources are used in the network (applicant’s specification on page 8, lines 1-2). Examiner notes using a reasonable but broad interpretation of “randomizing”, the limitation is also taught by *Hsu*. *Hsu* teaches a constraint-based route selection technique that supports establishing Multi-protocol Label Switching (MPLS) label switched paths through explicit routing [column 2, lines 66-67; column 3, lines 1-2]. Examiner notes that although explicit routing is disclosed, hop-by-hop routing is further supported [column 6, lines 37-44]. In particular, *Hsu* discloses a randomizing function with respect to load balancing [column 12, lines 31-40; column 13, lines 4-22]. Specifically that the multi-class technique attempts to offer a greater diversification on the multi-paths [column 13, lines 20-22]. In addition, *Hsu* also supports Optimized Multipath (OMP) for load balancing on a hop-by-hop basis (i.e., “hop-by-hop routed LSPs”) [column 8, lines 12-36]. (In addition, see also Explicit Routing as taught by *Viswanathan* on page 170 with respect to load balancing.) Thus “randomizing packet routings” is taught using a reasonable but broad interpretation.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. **Claims 1-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,363,319 to *Hsu* in view of “Evolution of Multiprotocol Label Switching” to *Viswanathan et al.* (“*Viswanathan*”).

As to **claims 1 and 18-20**, *Hsu* discloses a method and apparatus for selecting a route for a flow from a plurality of network paths connecting a source to a destination [Abstract]. More specifically, *Hsu* discloses constraint-based route selection using biased cost. Shown in figure 1a are routers using a centralized biased cost route selector (BCRS) and shown in figure 2 are routers using a distributed biased cost route selector (BCRS) using label edge routers (LERs) [column 3, lines 32-38]. With respect to a first and second node, examiner notes figure 3 illustrating a directed graph index [column 5, lines 25-67; column 6, lines 1-8]. Examiner notes that MPLS is known in the art for packet forwarding [column 1, lines 15-16].

The *Hsu* reference is generally silent or deficient to the limitation of replacing the tag (i.e., MPLS label) of the packet with the updated tag to give an updated packet. Examiner notes that it would have been obvious to a skilled artisan to replace the tag (i.e., MPLS label) when routing/switching the packet in the MPLS network. Examiner notes that further support or motivation comes from *Viswanathan* which discloses that a packet is “labeled” by either encoding the label in the data link layer or network layer header, or encapsulating the packet with a header specifically for MPLS [page 167, bottom right-hand column]. Thus *Viswanathan* cures the deficiency by disclosing replacing the tag of the packet with an updated tag for MPLS.

As both reference disclose routing packets in general, and more specifically routing packets using MPLS, examiner notes a strong motivation to combine the subject matter as a whole for both references.

As to **claim 2**, both references disclose transporting the packet to a destination node, using a reasonable but broad interpretation, where applicant defines destination node as either a terminal or a router on page 8, lines 10-11 of applicant's specification. For example, as shown in figure 2 of *Viswanathan* and on page 168 bottom right-hand column.

As to **claim 3**, *Hsu* discloses routing an MPLS packet in general over a directed graph network. Again, *Hsu* is deficient or silent to how a label is changed at an intermediate node. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to change a label at an intermediate node. Again, *Viswanathan* provides additional support by disclosing that a label can be swapped at intermediate (i.e., subsequent) nodes [page 167, bottom right-hand column].

As to **claim 4**, see the same reasoning behind the rejection to claim 2.

As to **claims 5 and 33**, see the same reasoning behind the rejection for claim 1 (and as shown in figure 3 of *Hsu*).

As to **claims 6, 7, and 21-23**, *Viswanathan* discloses using the label as an index into a table which specifies a new outgoing label and next hop [page 167, bottom right hand column]. The process is used throughout the network. In addition, *Hsu* discloses using a loop free algorithm (i.e., acyclic as defined by applicant on page 5, lines 3-4).

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Examiner notes a reasonable but broad interpretation of a normalized tag and function.

In particular, examiner notes that an MPLS is a normalized tag as is known in the art.

As to **claims 8 and 24**, *Viswanathan* discloses using a SHIM header as shown in figure 1 which comprises a label of at least 20 bits.

As to **claims 9 and 25**, both reference disclose using an updating function throughout the network.

As to **claims 10-11 and 26-27**, examiner notes using a reasonable but broad interpretation of “randomizing”, the limitation is also by *Hsu*. *Hsu* teaches a constraint-based route selection technique that supports establishing Multi-protocol Label Switching (MPLS) label switched paths through explicit routing [column 2, lines 66-67; column 3, lines 1-2]. Examiner notes that although explicit routing is disclosed, hop-by-hop routing is further supported [column 6, lines 37-44]. In particular, *Hsu* discloses a randomizing function with respect to load balancing [column 12, lines 31-40; column 13, lines 4-22]. Specifically that the multi-class technique attempts to offer a greater diversification on the multi-paths [column 13, lines 20-22].

As to **claims 12 and 28**, see the rejection for claim 9.

As to **claims 13-14 and 29-30**, see the rejection for claims 10-11.

As to **claims 15-16 and 31-32**, *Viswanathan* discloses the general concept of using a general packet between source and destination which may occur between one or more intermediate nodes. *Hsu* provides additional support by disclosing a flow of a packet (i.e. FIFO packet flow).

As to **claims 17 and 34**, *Viswanathan* discloses matching variable bits for a label using a broad but reasonable interpretation of hash.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris


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Examiner
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DWF


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